# Scientific American.

# Inbentions. Aew

Knitting Machines.

Brown S. Wood, of Burrillville, R. I., has invented several new and very useful improvements in Knitting Machines, for which he has taken measures to secure a patent. The object of the improvements in such machines have all in view the knitting of ribbed goods by power. The first improvement consists in a certain arrangement of wide and narrow jacks for the purpose of forming a row of long and short loops, which are laid in proper positions to be caught by the needles—the long loops by the rib needles, and the short loops by the other set of needles and drawn through similar loops previously formed in the same manner.

A second improvement consists in operating the jacks by means of a double slur, to which the heads of the jacks are so fitted that the narrow jacks are operated upon in advance of the regular turn, in order to prevent the wide jacks in advance of them from taking up the thread necessary to form the narrow loops, which, if allowed, would prevent the proper formation of the loops, and cause breakage of

There is also an improvement in the arrangement of the movements of the two sets of needles; another for the arrangement of the rib needles in the combination with a creased presser, by which they require to be sprung into the proper position to enter the loops made to receive them. After these needles have entered the loops, and the pressure of the creaser removed, they spring back and draw the loops lightly around them, so that on their retiring from their loops they always pass into

The thread carrier on this loom delivers its yarn in a direction perpendicular, or nearly so, to the needles, to prevent its rolling or sinking. There are some more new improvements embraced in this machine, a clear idea of which cannot be obtained without engravings, they are all considered to be very valuable, by the inventor.

## Bending Flanges on Wrought Iron Beams.

Julius H. Kroehl, of New Yow City, has taken measures to secure a patent, for an improvement in machinery for bending flanges on wrought iron beams. There is a pair of horizontal, and a pair of vertical rollers; the former pair has one roller with a face of the full depth of the beam, and the other has its face the depth of the beam minus the thickness of the flanges. The vertical rollers are both alike, and are of a width a little greater than the extreme width of the fianges. They are arranged opposite the space between the horizontal ones, and work in close contact with the sides of the roller. In order, to give the flanges and their beams, a taper or an elliptic, or other curved form, the vertical rollers have fianges, whose faces bear on the edges of the flanges of the beam, and cause the said rollers to receive such a movement in the direction of their axes, and apply such a force in that direction as bends the fianges of the beam to the desired

## Clothes Horse or Bars.

Dewey Phillips, of Shaftsbury, Vt., has applied for a patent on a new mode of making bars, on which to hang clothes, for drying, or after they are ironed. He constructs the bars of a series of horizontal slats secured to a ver tical standard, which can be folded up into a very small compass, when not used, thus making them more compact and convenient for housewives.

# Ventilators.

Joseph Cooley, of New York, City, has applied for a patent for an improvement on ventilators, which consists in exhausting the impure hot air from apartments, by applying a ventilator of peculiar construction to the chimnev in the inside of the room above the mantlepiece. This ventilator is under the control of persons in the apartment. It has a revolvingfan which takes the hot air from the room, but suffers no draught to come from the chimney back through it.

Improved Candlestick.

purpose of receiving and retaining all the melt- to secure a patent.

T. Rose, of Cortlandville, N. Y. has made the time it is burning, and in connection with a very useful improvement in candlesticks; the this arrangement there is a series of sharp pins nature of which consists in enlarging the inner on the concave socket, to enable the candlesliding tube of the candlestick, and providing stick to receive and hold firmly, candles of vait with a concave grease tight socket, for the rious thicknesses. Measures have been taken

#### STEAM ENGINE---NEW CUT-OFF.---Fig. 1.

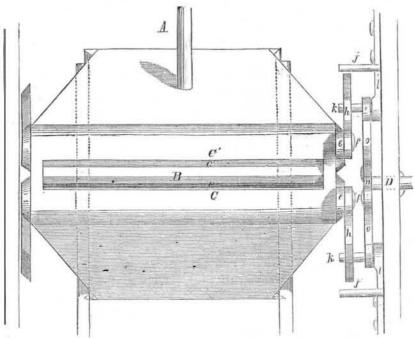
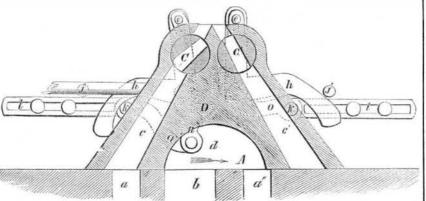


figure 3 is an elevation of the mechanism, by The same letters refer to like parts.

employment—as a cut-off—of two cocks which valve is obviated.

The annexed engravings are views of an im- | are fitted to the slide valve in such a way as to provement in the Cut-Off of steam engines, in- | be capable of opening and closing the passages yented by James Montgomery, of Bridgeport, in the valve through which the steam passes to Conn., who has taken measures to secure a pa- the steam ports of the cylinder, and which are tent for the same. Figure 1 is a plan view of moved at suitable times to open and close the a steam chest with a slide valve and cut-off, said passages by means of levers with which constructed according to the improvement, and they are furnished; these levers are brought figure 2 is a longitudinal section of the same; in contact—by the motion of the slide valvewith certain fixed and adjustable stops in the which the action of the cut-off is regulated. steam chest. These cocks constitute a perfectly balanced cut off, and the great friction pro-The nature of this invention consists in the duced by a slide or slides on the back of the

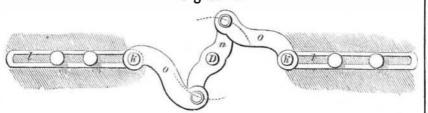
# Figure 2.



close the passages, c e', and is widened so as to cocks by coming in contact with fixed stops, j

A is the valve seat, a a"are" the steam ports, cocks may be opened and closed with a less and b is the exhaust port; B is the slide valve movement. The cocks may be of any well with steam passages, c c', through which the known construction, and each is furnished at desired effect. steam passes to the ports, a a', and a cup, d, one end with a short lever, e, which carries to conduct the exhaust steam to the exhaust a pin, f, to work in a slot in a bent lever, h, port, similar to the common slide valve which whose fulcrum is on a pin in the side of the has a cut-off slide working at the back of it. valve below the cock. The cocks are opened The back part of the valve is suitably formed and closed by moving the levers, h h. These to receive the cocks, C C', which open and levers receive the necessary motion to open the increase the length of the passages, and thus j', within the valve chest, near the termination enable their width to be reduced so that the of every stroke of the valve, and then receive

# Figure 3.



are attached to two swinging arms, l l, which ernor or with some device for adjusting by the common card cylinder.

ed tallow that may run down the candle during | hand. Ry turning the spindle the pins, k k, are brought nearer together or forced farther

> The operation of the cut-off will be understood by reference to figure 2, where the pins, k k, are arranged to cut at half stroke.-The valve is supposed to be moving to the right, as indicated by the arrow, and to have nearly finished its stroke. The engine piston is supposed to be moving in the same direction and to have arrived nearly at half stroke. The lever, h, of the cock, C, is in contact with the pin, k, and the cock is closing. The lever, h, of the cock, C', is in contact with the stop, j', and the cock is opening. By the time the valve reaches the end of its stroke, and the piston is at half stroke, the cock, C', will be wide open, and the cock, C, closed, and the steam cut off. The piston is caused to finish its stroke by the expansion of the steam in the cylinder, while the valve returns half way. The valve having passed its half stroke opens the port, a', to admit the steam for the return stroke of the piston. The weight of the levers, h h, which is very trifling, is supposed to be balanced, or to be counteracted by the friction of the cocks, so that the cocks will remain in the position in which they are left by the pins and stops, and hence the cock, C', has remained open, as it was left by the action of the stop, j, and the steam is free to enter the port, a'. The cock, C, during this time has remained closed, and both cocks remain in the positions now described, until the lever, of C', comes in contact with the other pin, k, and the lever of C, with the stop, j', after which the continued motion of the valve causes the cock, C', to be closed to cut the steam off, and C to be opened ready for the admission of steam when the passage, c, is brought opposite the port, a by the return of the valve. Duringthe return of the valve the above described action

By setting the pins, k k, wide apart, it will be understood that the levers, h h, will respectively be brought in contact with them at an earlier point in the stroke of the piston. By setting the pins in such a position as not to be struck by the levers, h h, the cut-off may be made inoperative. The alteration of the position of the pins is effected by turning the spindle, D. In stationary engines it is proposed to connect this spindle with a governor in such a way that the increased speed of the governor shall force the pins farther apart, and the decreased speed draw them towards each other, and thus govern the engine by the cut-off. In locomotives or engines on which no governor is desirable, or can be conveniently employed, the spindle requires to be fixed in the proper position to adjust the pins to cut off at the desired point.

This cut-off is particularly well adapted for use in connection with a governor, owing to its being balanced, and therefore working without sufficient friction to produce any resistance to the operation of the governor whose slightest variations would instantaneously produce the

More information may be obtained by letter addressed to the inventor.

### Iron Houses.

Charles Mettam, of New York City, has taken measures to secure a patent for an improvement in the construction of iron houses. The nature of the improvement consists in erecting the columns of the upper stories upon chairs, which can be easily adjusted to any desirable position on the breast summers, and which when raised directly over the columns of the lower story to support other upper columns, serve to connect the breast summers in such a manner as to provide for their longitudinal expansion and contraction.

## Napping Cloth.

Joseph Weight, of Lawrence, Mass., has taken measures to secure a patent for an improved the necessary motion to close the cocks and cuth ang on fixed studs, m m, on the side of the machine for napping cloth. It consists in the off steam by coming in contact with pins, k k, valve chest. They are adjusted by means of employment of an endless card sheet in combiat any desired point in the next movement of a small beam, n, which is connected to the arms nation with a transverse card belt. The latter the valve. The pins, k k, require to be ad- | l l, by links, o o. The axis of the beam is a | belt keeps the cloth stretched to its proper justable to close the cocks and cut off the steam | spindle, D, which passes through the side of | width, for the action of the endless card belt, at any desired point, and for this purpose they the steam chest, and is connected with a gov- which presents a far larger carding surface than