

(No Model.)

T. BRIGGS & E. WEBB.

YARN TWISTING MACHINE.

No. 341,792.

Patented May 11, 1886.

FIG. 3.

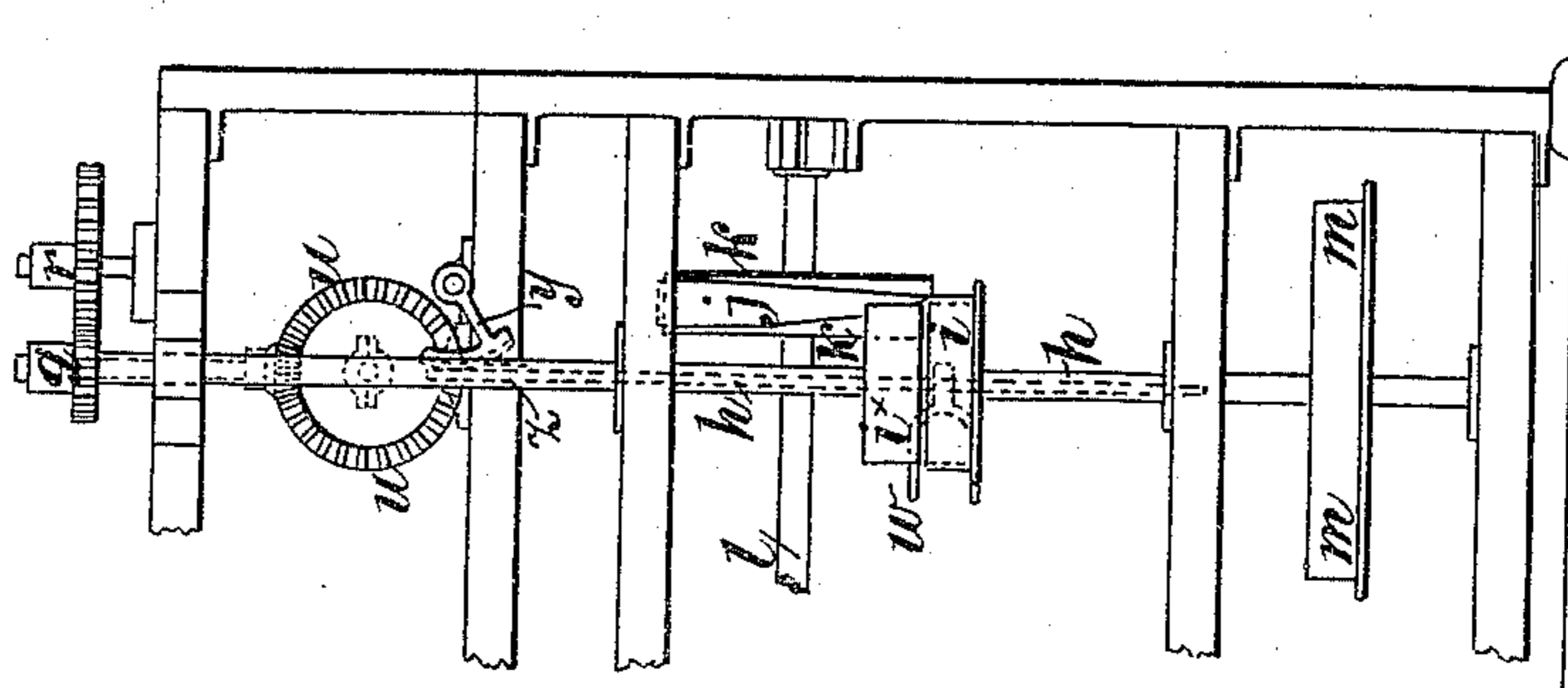


FIG. 2.

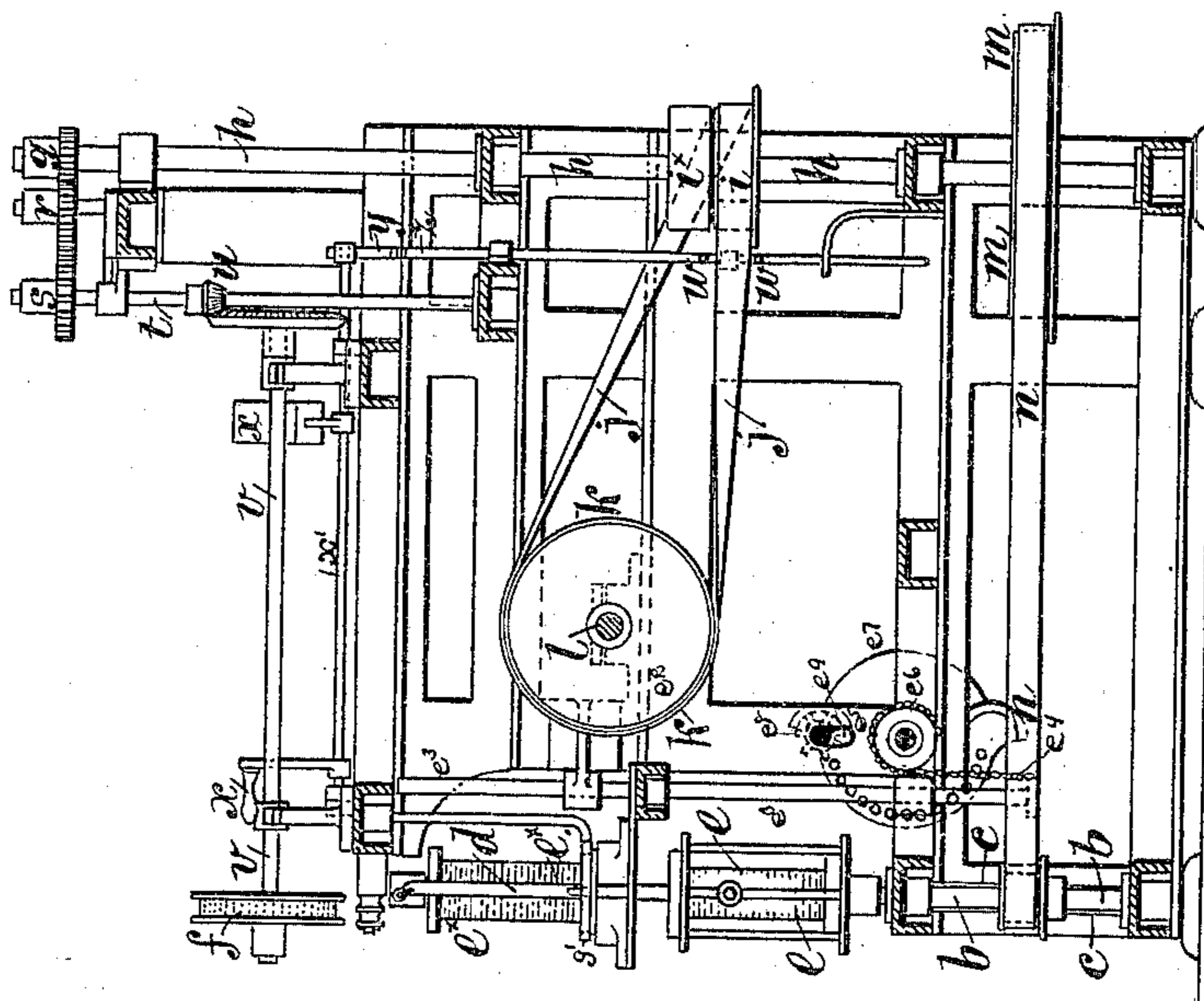
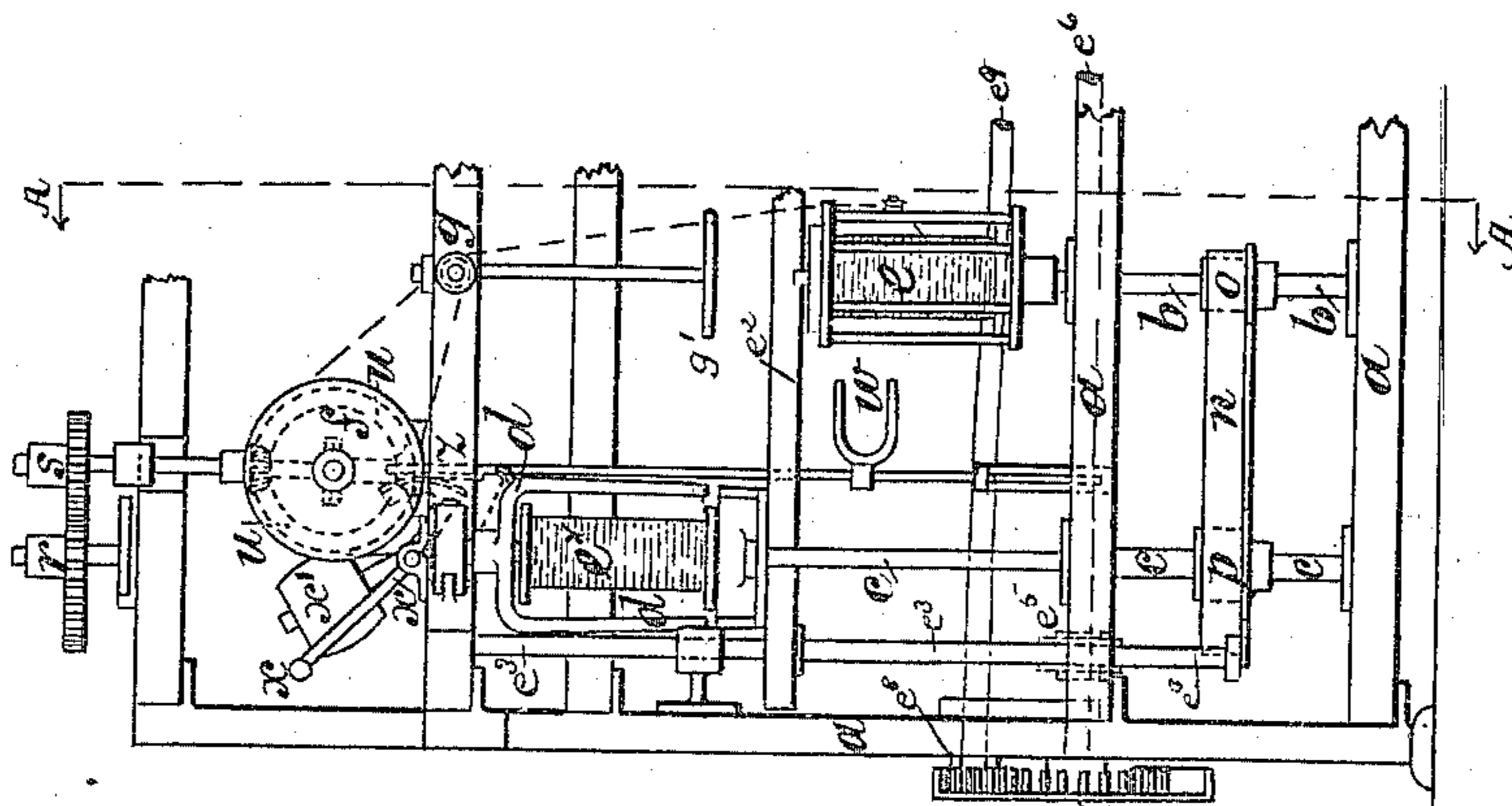


FIG. 1.



Witnesses.
Harry Drury
Henry Bossert.

Inventors
T. Briggs & E. Webb
by their Attorneys
Howson and Sons

UNITED STATES PATENT OFFICE.

THOMAS BRIGGS AND EDWARD WEBB, OF SALFORD, COUNTY OF LANCAS-
TER, ENGLAND.

YARN-TWISTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 341,792, dated May 11, 1886.

Application filed May 6, 1885. Serial No. 164,516. (No model.) Patented in England January 31, 1884, No. 2,426.

To all whom it may concern:

Be it known that we, THOMAS BRIGGS and EDWARD WEBB, subjects of the Queen of Great Britain and Ireland, and both residing at Salford, in the county of Lancaster, Eng-
land, have invented Improvements in Yarn-
Twisting Machines, (for which we obtained
a patent in Great Britain, No. 2,426, dated
January 31, 1884,) of which the following is a
specification.

This invention consists of improvements in
the construction of apparatus for twisting
yarns of fibrous material.

Our invention will be readily understood
from the following description thereof, refer-
ence being made to the accompanying draw-
ings, in which—

Figure 1 is a front elevation of one end
section of our machine, parts of the frame
being broken away. Fig. 2 is a vertical
transverse section of the same on the line A
A, Fig. 1; and Fig. 3 is a back elevation of
the same, parts of the frame being broken
away.

Instead of the creel-pins being arranged at
the top of the frame for receiving the bobbin
of yarn to be twisted, as in the ordinary
method of doubling, we arrange the spindles
in pairs, mounted upon rails secured to the
front of the frame *a a*. One of the spindles is
termed the "letting-off" spindle. The other
is an ordinary "doubling-spindle," *c c*, pro-
vided with a flier, *d d*. The bobbins of yarn
e e, previously wound upon a doubling wind-
ing-frame, are placed upon the letting-off
spindles, and the threads from each of these
bobbins is carried upward through the ring
g' and over the pulley *g*, then round the
draw-roller *f f*, then back round the pulley *g*,
and over the draw-roller *f* again, thence pass-
ing down the flier *d* to the bobbin *e'* upon the
taking-up spindle *c*. By this means the threads
receive twist at both ends.

The bobbins *e' e'* are carried upon a trav-
ersing rail, *e''*, which is lifted and lowered by
vertically-sliding rods *e''*, supported and actu-
ated by chains *e''* and pulleys *e''* on a shaft, *e''*,
to which an alternately-reversing movement
is given by means of a mangle-wheel, *e''*, driven
by a pinion, *e''*, on a constantly-revolving
shaft, *e''*. (See Figs. 1 and 2.) This shaft *e''*

may receive its constantly-revolving motion
directly from the driving-shaft *l*, or from any
other shaft convenient for the purpose. The
traversing motion, however, forms no part of
our present invention, and may be replaced
by any other well-known or equivalent mo-
tion for effecting the traverse of the rail *e''*.

Conveniently situated at the back part of
the machine, and behind each pair of spin-
dles, is placed a vertical shaft, *h h*, fitted with
fast and loose pulleys *i i'*, and driven by a
band, *j j*, from a pulley, *k k*, upon a horizon-
tal shaft, *l l*, passing from end to end of the
front part of the frame. On each of these
vertical shafts *h h*, and near the lower part
thereof, is keyed a flanged pulley, *m m*, which
serves to drive each pair of spindles by means
of a band, *n n*, passing round both the small
flanged pulleys, *o o p p*, on the spindles, and
driving both in the same direction. On the
upper part of each of these vertical shafts *h h*
is keyed a pinion, *g g*, gearing into an inter-
mediate wheel, *r r*, which drives a change-
pinion, *s s*, keyed or fastened by means of a
set-screw to another small upright shaft, *t t*,
placed a short distance in front of the first-
named vertical shaft *h h*. From this small
upright shaft the draw-roller *f f* (placed be-
tween the two spindles *b* and *c*, forming the
pair) is driven by means of bevel-gearing *u u*
and a horizontal shaft, *v v*, extending to the
front of the frame and carrying the draw-
roller.

The stopping of each pair of spindles is ef-
fected by removing the band driving the up-
right shaft from the fast pulley *i i* to the loose
pulley *i' i'* by means of a strap-fork, *w w*,
worked by a small handle, *x x*, in front of the
machine. The said handle actuates the toothed
sector *y y*, which is on the same shaft or axis,
x', with the handle *x*, and raises or lowers the
rack *z z* and weight *x' x'*, counterbalancing
the weight of the said strap, fork, rack, and
sector.

By this arrangement it will be seen that
each pair of spindles, with its separate draw-
roller, forms a distinct machine, or section of
a machine, complete in itself, although the
frame may contain any number of pairs with-
out any increase of space or pitch beyond that
of the ordinary twisting-frames. The advan-

tages of this construction will also be apparent to any one conversant with doubling and twisting heavy fibers, as it admits of a great variety of cords being produced simultaneously, and avoids all delay and expense in changing or running off a frame. Each spindle can be supplied with fresh bobbins and doffed or pierced or changed separately while others are running, thus enabling a much larger "turn-off" to be obtained.

The principal advantages obtained by this improved construction of twisting-frame are, first, that both letting-off and "winding-on" spindles being at the front of the machine, both space and labor are economized; second, that each separate section of the machine is complete in itself and can be started and stopped independently of all other sections; third, that the twist is put in at both ends of the yarn at once, and equal length and strain upon each strand is insured; fourth, that the system allows of the spindles being driven at a much higher speed than otherwise, and as they are driven from vertical pulleys with comparatively wide straps there is no liability to slip or "miss twist," resulting in the production of a superior cord and very little "waste."

We do not wish to claim in this case the arrangement of both the letting-off and doubling spindles at the front of the machine, as that feature is set forth in a separate application for patent filed by us May 6, 1885, Serial No. 164,517.

We claim as our invention—

1. The combination of the spindles *b* and *c*, adapted to receive letting-off and doubling bobbins, and having pulleys *o* and *p*, with shaft *h*, having pulley *m*, and strap *n*, passing round these pulleys, and with driving-pulley *k*, belt *j*, belt-shifter for the latter, and fast and loose pulleys *i i'* on the shaft *h*, all substantially as specified.

2. The combination of the letting-off spindle *b*, the doubling-spindle *c*, flier *d*, and draw-roller *f* with the driving-shaft *h*, stopping and starting devices for the latter, and mechanism, substantially as set forth, whereby the two spindles and draw-roller are all driven from the shaft *h*, all substantially as set forth.

3. The combination of the letting-off spindle and doubling-spindle with the shaft *h*, and devices for transmitting motion to the spindles from the shaft *h*, fast and loose pulleys on the shaft, driving-pulley *k*, belt *j*, rack *z*, carrying a fork, *w*, a sector, *y*, shaft *x'*, and operating-handle *x* for the sector, all substantially as specified.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

THOS. BRIGGS.
EDWARD WEBB.

Witnesses:

JNO. HUGHES,
J. ERNEST HUGHES.